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A survey of Holarctic Linyphiidae (Aranei). 4. A review of the erigonine genus *Lophomma* Menge, 1868

Обзор голарктических пауков семейства Linyphiidae (Aranei). 4. Исследование рода *Lophomma* Menge, 1868

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KEY WORDS: Aranei, Linyphiidae, Erigoninae, spiders, *Lophomma*, Holarctic, new combination, new synonymy.

КЛЮЧЕВЫЕ СЛОВА: Aranei, Linyphiidae, Erigoninae, пауки, *Lophomma*, Голарктика, новая комбинация, новая синонимия.

ABSTRACT. A review of the Holarctic genus *Lophomma* Menge, 1868 revealed that this genus includes only two species: *L. punctatum* (Blackwall, 1841) and *L. vaccinii* (Emerton, 1926) of 11 known before. Both *Lophomma* species are illustrated as well as all Nearctic species formerly treated in this genus. Status of *L. stictocephalum* Menge, 1868 (the generotype), treated as a junior synonym of *L. punctatum,* is discussed. Four *Lophomma* species have been synonymised: *L. candidum* Bösenberg, 1902 syn.n. = *Mioxena blanda* (Simon, 1884); *L. rufipes* Bösenberg, 1902 syn.n. = *Typhochrestus digitatus* (O. Pickard-Cambridge, 1872); *L. umbilicatum* Crosby & Bishop, 1933 syn.n. = *Lophomma vaccinii* (Emerton, 1926) and *L. cognatum* Holm, 1960 syn.n. = *Lophomma vaccinii* (Emerton, 1926). Four new combinations are suggested: *Diphya albulum* (Paik, 1983) comb.n. (Tetragnathidae), *Diphya tanasevitchi* (F. Zhang, Y. Zhang & Yu, 2003) comb.n. (Tetragnathidae), *Ceratinops sylvaticus* (Emerton, 1913) comb.n. and *Silometopoides pingrensis* (Crosby & Bishop, 1933) comb.n., all ex. *Lophomma*. Although *"Lophomma" depressum* (Emerton, 1882) is not related to the generotype it was left in *Lophomma* because its taxonomic position is not clear. Lectotypes are designated for *Lophomma stictocephalum, L. pingrensis* and *L. sylvaticum*.

РЕЗЮМЕ. Исследование голарктического рода пауков *Lophomma* Menge, 1868 показало, что род включает всего два вида: *L. punctatum* (Blackwall, 1841) и *L. vaccinii* (Emerton, 1926) против 11 включавшихся ранее. Оба вида *Lophomma* проиллюстрированы как и все неарктические виды ранее рассматривавшиеся в этом роде. Обсуждается статус типового вида рода, *L. stictocephalum* Menge, 1868, считающего младшим синононимом *L. punctatum*. Четыре вида *Lophomma* синонимизированны: *L. candidum* Bösenberg, 1902 syn.n. = *Mioxena blanda* (Simon, 1884); *L. rufipes* Bösenberg, 1902 syn.n. = *Typhochrestus digitatus* (O. Pickard-Cambridge, 1872); *L. umbilicatum* Crosby & Bishop, 1933 syn.n. = *Lophomma vaccinii* (Emerton, 1926) и *L. cognatum* Holm, 1960 syn.n. = *Lophomma vaccinii* (Emerton, 1926). Предложены четыре новые комбинации: *Diphya albulum* (Paik, 1983) comb.n. (Tetragnathidae), *Diphya tanasevitchi* (F. Zhang, Y. Zhang & Yu, 2003) comb.n. (Tetragnathidae), *Ceratinops sylvaticus* (Emerton, 1913) comb.n. и *Silometopoides pingrensis* (Crosby & Bishop, 1933) comb.n., все ex. *Lophomma*. Хотя *"Lophomma" depressum* (Emerton, 1882) не родственна типовому виду рода, она пока не выведена из *Lophomma* поскольку неясна таксономическая принадлежность этого вида. Лектотипы выделены для *Lophomma stictocephalum, L. pingrensis* и *L. sylvaticum*.

Introduction

Lophomma Menge, 1868 is a relatively small genus of linyphiid spiders with 11 species distributed in the Holarctic [see Platnick, 2006]. Six species are known from Eurasia and the same number is reported from the Nearctic [Platnick, 2006]. There is only one species common to both subregions of the Holarctic, *L. cognatum* Holm, 1960. Of three species known from Europe, only one is well known, *L. punctatum* (Blackwall, 1841), the generotype (according to Platnick [2006]). Two other species, *L. candidum* and *L. rufipes*, were de-

scribed by Bösenberg [1902] from Germany. Since then nobody has reported or redescribed these species, but just discussed them [Roewer, 1928 & Braun, 1982]. In Asia there are four species: *L. punctatum*, *L. cognatum*, *L. albulum* Paik, 1983 and *L. tanasevitchi* Zhang et al., 2003 (not listed in Platnick's catalogue versions 4–6). Three species, two German and one Holarctic are known from females only. The same number of species is known from males only: two Nearctic species [see Platnick, 2006] and one Chinese.

Lophomma was never revised in Eurasia or in North America. Eurasian species of this genus can be easily recognized by numerous pits (=punctation) on carapace and sternum. All Nearctic *Lophomma* species, except *L. cognatum* and *L. columbia* Chamberlin, 1948 (now in *Scotinotylus*), were surveyed by Crosby & Bishop [1933]. Only two American species attributed to this genus have carapace pits (punctation).

In Siberia there are only two species, *L. punctatum* and *L. cognatum* [cf. Eskov, 1994]. Although females can be rather easily separated, there were certain difficulties with males, because the male of the latter species was never described. Therefore we undertook this study with the main goal to describe the male of *L. cognatum* and to provide comparative drawings of two similar species. Working on this project, we found that *L. stictocephalum* Menge, 1868 (the type species by original designation), treated as a junior synonym of *L. punctatum,* differs from *L. punctatum*. We also recognized that most of the Nearctic species are not related to the generotype, and that the Oriental species*, L. albulum* and *L. tanasevitchi* are wrongly placed in Linyphiidae. Therefore we decided to extend our study to encompass all *Lophomma* species.

Methods

Material treated herein is shared between collections of the American Museum of Natural History, New York (AMNH); Canadian National Collections, Ottawa (CNC); Institute for the Biological Problems of the North, Magadan (IBPN); the Manchester Museum of the Manchester University (MMUM), Museum of Comparative Zoology, Boston (MCZ); Burke Museum, University of Washington (UWBM); Zoological Museum, University of Turku (ZMUT); Zoological Museum, University of Bergen (ZMUB); Naturhistoriska Riksmuseet, Stockholm (NRS) and Zoological Museum of the Moscow State University (ZMMU). Material from Kirill Eskov's collection, stored in ZMMU is marked as ZMMU-KE. Map is based on material studied during this project, our earlier identifications published in several papers and literature data.

Illustrations were made using transmitting and reflecting light microscopes with drawing "devices". SEM-microphotographs were made with a JEOL JSM-5200 in the Zoological Museum, University of Turku. All measurements are given in mm. Embolic division was abbreviated in parts of the text as ED.

The following abbreviations are used in text and figures:

Cp — cephalic pits (головные ямки);
Da — dorsal tibial apophysis (дорзальный отросток голени);
Ek — keel of Ta (киль *Ta*);
Em — embolus (эмболюс);
Ia — intermediate apophysis (промежуточный отросток);
Me — embolic membrane (мембрана эмболюса);
Pa — paracymbium (парацимбиум);
Pi — pit of epigynal septum (ямка септума эпигины);
Pp — posterior median plate (задняя медиальная пластинка);
Pt — protegulum (протегулюм);
Ra — retrolateral tibial apophysis (ретролатеральный отросток голени);
Rx — radix (радикс);
Sa — suprategulum (супратегулюм);
Se — septum (= anterior median plate; септум или передняя медиальная пластинка);
Sf — swollen part of femur (вздутая часть бедра);
Sm — marginal suprategular apophysis (краевой отросток супратегулюма);
Su — sulci (сульци или щели);
Ta — terminal apophysis (вершинный отросток);
Tp — tailpiece (хвост);
Ts — tegular sac (тегулярная сумка).

Lophomma Menge, 1868

Type species: *Lophomma stictocephalum* Menge, 1868, from Danzig (=Gdansk).

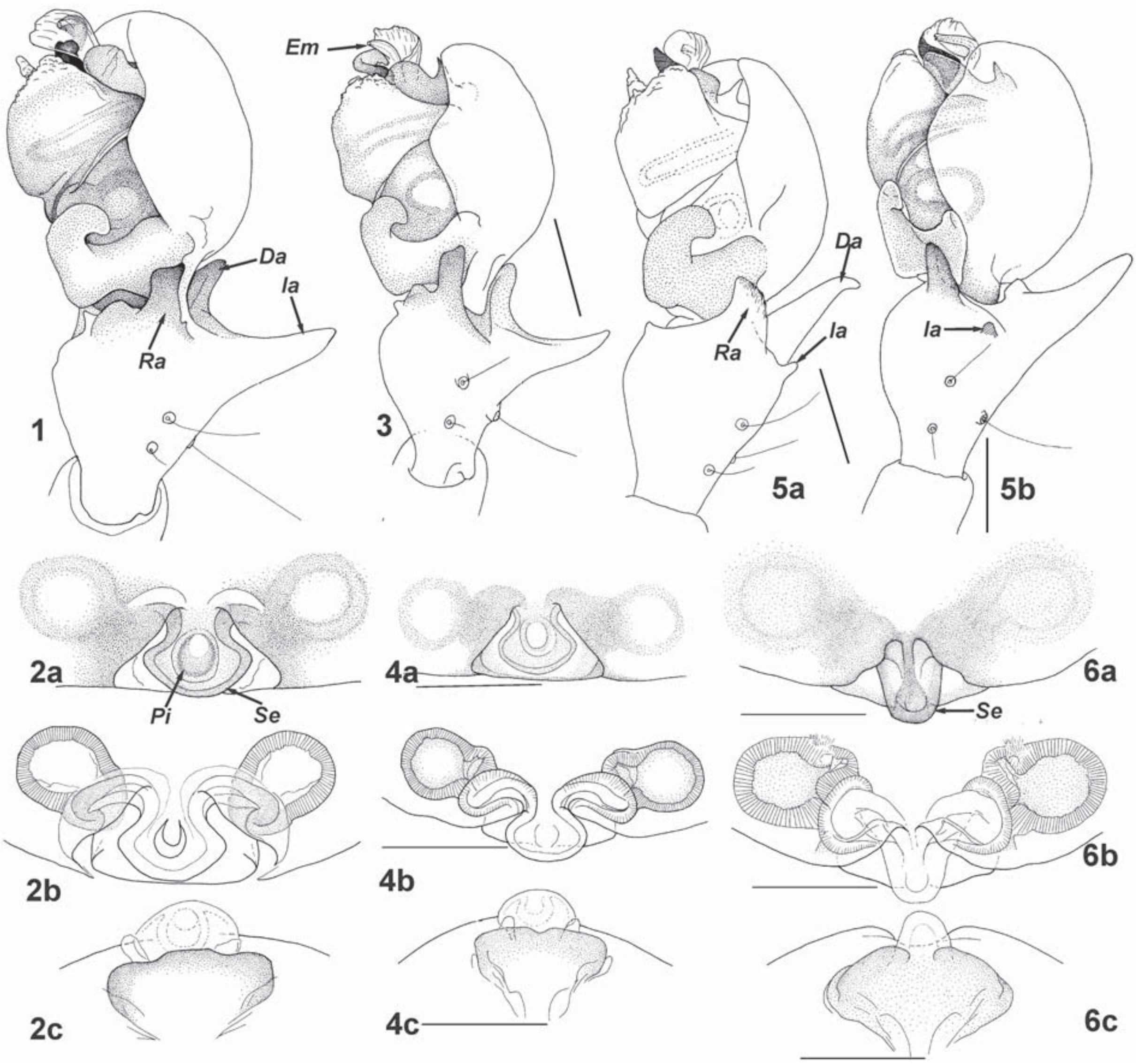
ETYMOLOGY. Derived from two Greek words "λόθος" & "όμμα" meaning "crest" and "eye" respectively. Menge [1868] translated his name as "hill-eye" (or eyes on elevation). The gender in neuter [Cameron, 2005].

COMMENTS. Bonnet [1957] and Platnick [2006] list *Walckenaera punctata* Blackwall, 1841 as the type species of *Lophomma*, although this genus was described on the basis of 9 new species [Menge, 1868]. All species described by Menge were later transferred to other genera, only one was left: *L. stictocephalum* Menge, 1868. Simon [1884] synonymised *W. punctata* and *L. stictocephalum*. The correct name of the generotype according to the ICZN rules is *Lophomma stictocephalum,* and not *W. punctata. L. stictocephalum* has to be considered for another reason also: *L. stictocephalum* and *L. punctatum* are possibly not conspecific (see below).

There is another problem concerning *L. stictocephalum.* Judging from the verbal descriptions and illustrations of this species, Menge's female and male belong to different genera, and only the male would now be considered a *Lophomma*.

Type material stored in Königsberg (now Kaliningrad) was thought to be lost, but material which can be considered as syntypes is present in Stockholm.

DESCRIPTION. Medium sized 1.8–2.7 dark colored erigonines. Habitus and coloration of male as in Fig. 7.



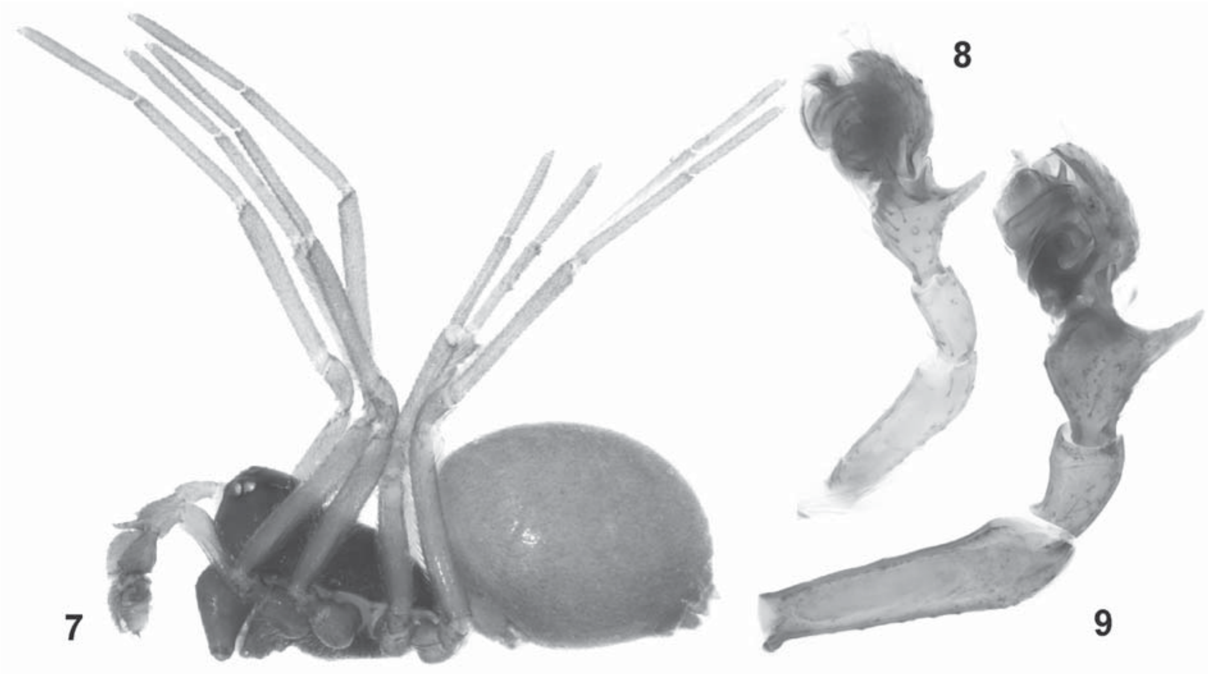
Figs. 1–6. Copulatory organs of *Lophomma punctatum* (1–4) and *L. vaccinii* (5–6 — Magadan Area). 1, 3, 5 — male palp, retrolateral (a & b — different turns); 2, 4, 6 — epigyne: a) ventral, b) ventral, after maceration, and c) caudal. 1–2 — England, 3–4 — South Finland. Scale 0.1 mm.

Abbreviations: *Da* — dorsal tibial apophysis; *Em* — embolus; *Ia* — intermediate apophysis; *Pi* — pit of epigynal septum; *Ra* — retrolateral tibial apophysis *Se* — septum.

Рис.1–6. Копулятивные органы *Lophomma punctatum* (1–4) и *L. vaccinii* (5–6 — Магаданская обл.). 1, 3, 5 — пальпа самца, ретролатерально (a и b — пода разным углом); 2, 4, 6 — эпигина: a) вентрально, b) вентрально, после мацерации, и c) сзади. 1–2 — Великобритания, 3–4 — южная Финляндия. Масштаб 0,1 мм.

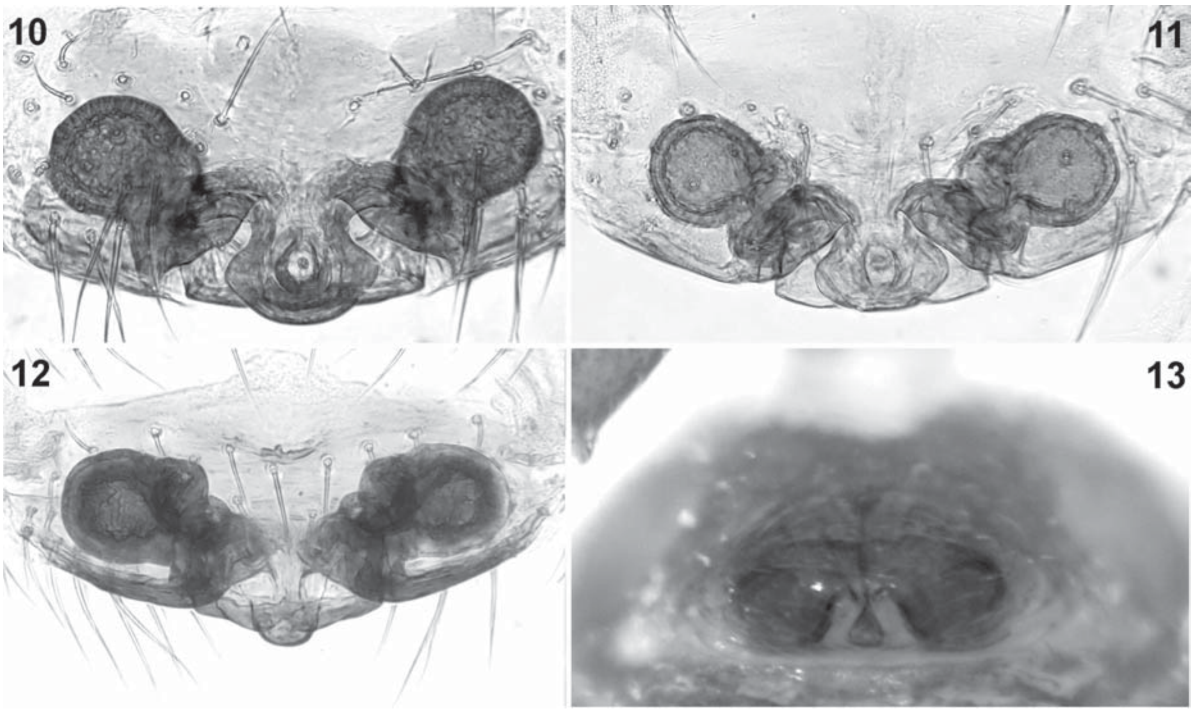
Carapace and sternum brown, covered with numerous pits (*Cp*) in both sexes (Figs. 20–24). Male carapace modified, with cephalic pits placed in sulci (*Su*), sulci long with sharp edges behind eyes, cephalic part slightly raised (Figs. 20–21, 23–24). Each pit on carapace has a small seta. Pits cover almost all of carapace; they are less dense on dorsum of thoracic part, and are lacking between sulci and in ocular area (Figs. 21, 24). Frontal parts of chelicera also with pits, but these pits have long setae (Fig. 22). Cephalic part in male with longitudinal row of setae (Figs. 21, 24). Spination of tibia 2-2-1-1. TmIV absent.

Male palp. Male palp with relatively long femur (longer than patella+tibia, Figs. 25, 29, 30), thickened in apical part (*Sf*, Fig. 25), patella elongate, longer than wide, not swollen; tibia with three apophyses (Figs. 1, 3, 5): flat retrolateral (*Ra*), long or short conical intermediate (*Ia*), and flat, tapering dorsal (*Da*). Intermediate apophysis in *L. vaccinii* strongly reduced and can be almost invisible (Fig. 5). Tip of lateral apophysis with small denticles-spines visible in microscope and SEM. Cymbium unmodified. Paracymbium (*Pa*) relatively large (Figs. 1, 3, 5), with 4 setae on terminal (hooked) part (Figs. 26–27, 31–32). Protegulum (*Pt*) distinct. It is subdivided into two parts (Fig. 33). The inner part can be possibly called as a tegular sac (*Ts*). Suprategulum (*Sa*) with spine-like marginal apophysis (*Sm*). Embolic division compact, almost straight, slightly S-shaped (Fig. 14, 16, 18, 28,



Figs. 7–9. Habitus of the male of *Lophomma vaccinii* (7 — Shumshu) and palp of *L. punctatum* from S. Finland (8) and England (9) retrolateral.

Рис. 7–9. Габитус самца *Lophomma vaccinii* (7 — Шумшу) и пальпа *L. punctatum* из Ю. Финляндии (8) и Англии (9), ретролатерально.



Figs. 10–13. Ventral view of epigyne of *Lophomma punctatum* (10–11 — England) and *L. vaccinii* (12 — Magadan, 13 — Shumshu).

Рис. 10–13. Эпигина, вид снизу, *Lophomma punctatum* (10–11 — Англия) и *L. vaccinii* (12 — Магадан, 13 — Шумшу).

33–34). Tail-piece (*Tp*) of the embolic division about twice as wide as radix (*Rx*). Terminal part of embolic division with two distinct outgrowths of the same length: embolus proper (*Em*) and anterior radical process (*sensu* Hormiga, 2000; = terminal apophysis of embolic division (*Ta*); Figs. 28, 33–34). Both outgrowths slightly turned and parallel to each other. *L. punctatum* has additional keel-like outgrowth (*Ek*) in the base of terminal apophysis. Embolic membrane broad (*Me*), as long as wide.

Epigyne. Epigyne with triangular fovea (Figs. 35–36, 38, 40, 41a, 42a) with distinct lateral margins. Fovea divided by wide and round or thin stripe-like septum (*Se*) formed by anterior median plate. Anterior median plate in *L. punctatum* with round or elongate pit (*Pi*) (Figs. 2, 4, 10–11, 35–36, 38, 40a). Posterior plate (*Pp*) wider than high, or as wide as high (Figs. 37, 39, 40b, 41b, 42b). Vulva as in Figs. 3, 7, 12, with round or oval receptacula and relatively short insemination ducts.

DIAGNOSIS. Members of this genus can be easily recognized by the combination of characters: carapace and sternum with numerous pits (=punctation), male palpal tibia and femur with slightly thickened terminal part of femur, tibia with two or three apophyses, lateral apophysis with fine spines-denticles at the tip, embolic division compact, two-armed in terminal part, epigyne with septum formed by anterior median plate.

In the Holarctic, few genera have deep punctation similar to that in *Lophomma,* for example *Sauron* Eskov, 1995, *Orientopus* Eskov, 1992, and several *Pelecopsis* species. But members of *Sauron* can be easily separated due to the lack of punctation on clypeus, lack of sulci, presence of cephalic horns and less dense punctation along the margin. *Orientopus* has one long dorsal tibial apophysis, and a long embolus. *Pelecopsis* species have less dense and less deep punctation and only one tibial apophysis.

COMMENTS. It seems that in the 19th and early 20th centuries *Lophomma* was diagnosed as a genus with modified carapace in which the ocular area (cephalic part) is slightly raised over the thorax, and the epigyne has a fovea or a large pit (one large and deep hole) [see Bösenberg, 1902]. At that time *Micrargus herbigradus* (Blackwall, 1854) was treated as the type species of the genus [see Bösenberg, 1902]. Carapace and sternal pits/punctation were used only for separation of *L. punctatum* from other species. Simon's [1926] definition of Lophommateæ was as follows: all genera have sulci, tibia with 1 or 2 apophyses.

Arachnologists from different parts of the Holarctic have had very different concepts of the genus. American authors paid most attention to the modified cephalic part of the carapace, while arachnologists from Japan, Korea and China recognized members of this genus by carapace punctation, and disregarded the unmodified cephalic part of the male carapace in all three species from Asia. Crosby & Bishop [1933] appear to have distributed Nearctic species with cephalic pits and simple embolic division more or less randomly in *Lophomma*, *Ceratinops* and *Tapinocyba* [Buckle, personal communication].

Weakness of the *Lophomma* concept and diagnosis can be shown by an example: species presently included in 14 Erigoninae genera: *Baryphyma, Collinsia, Dicymbium, Diplocephalus, Dismodicus, Micrargus, Minicia, Mioxena, Orientopus, Silometopoides, Saloca, Scotinotylus, Typhochrestus* and *Walckenaeria,* two genera of Micronetinae (*Improphantes* and *Microneta*) and even one tetragnathid genus, *Diphya,* were earlier placed in *Lophomma*.

Judging from our study, it seems that only two clear species belong to this genus, one Palaearctic and one Siberio-Nearctic.

COMPOSITION. *L. punctatum* (Blackwall, 1841), and *L. vaccinii* (Emerton, 1926). One additional species, *L. depressum* (Emerton, 1882) was left in *Lophomma*, because we cannot trace its correct taxonomic position. In addition, there are some doubts about conspecificity of *L. stictocephalum* Menge, 1868 (generotype) and *L. punctatum*.

DISTRIBUTION. This genus has circum-Holarctic boreo-nemoral range, and occurs across the Palaearctic north to 70º20'N and south to about 40ºN. In Nearctic it is known in Alaska, Québec, Ontario, New York and Massachusetts (Map 1).

Survey of the species

Lophomma punctatum (Blackwall, 1841)
Figs. 1–4, 8–11, 14–17, 23–24, 29–40.

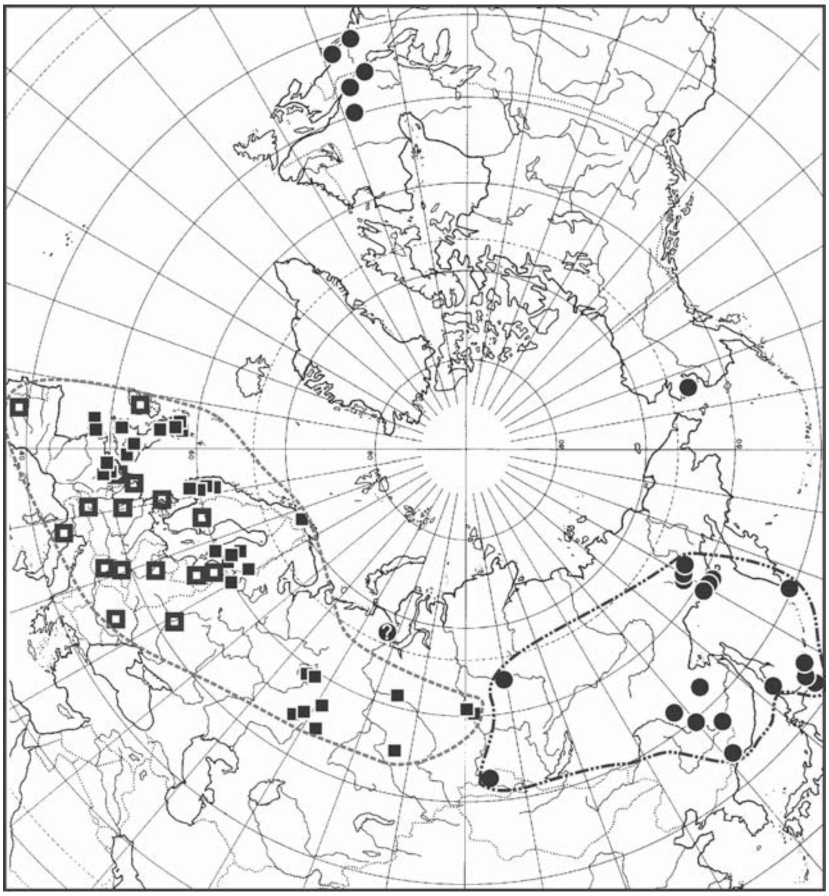
Walckenaera punctata Blackwall, 1841: 629 (♀).
Walckenaera punctata — Blackwall, 1864: 295, pl. 20, f. 210 (♂♀).
Lophomma stictocephalum Menge, 1868: 210, pl. 41, f. 108 (♂, not ♀).
Walckenaera punctata — O. Pickard-Cambridge, 1879: 148.
Microneta scrobiculata Menge, 1869: 227, pl. 44, f. 126 (♂♀).
Lophomma punctatum — Simon, 1884: 535, f. 332–336 (♂♀); Becker, 1896: 99, pl. 10, f. 5 (♂♀); Simon, 1926: 440, 517, f. 778 (♂♀); Tullgren, 1955: 313, f. 18a–c (♂♀); Locket & Millidge, 1953: 277, f. 167E-H (♂♀); Wiehle, 1960: 543, f. 1008–1016 (♂♀); Merrett, 1963: 408, f. 79A–C (♂); Miller, 1971: 268, pl. LVI, f. 6–7 (♂); Tyshchchenko, 1971: 258, f. 836 (♀); Palmgren, 1976: 77, f. 13.10–13 (♂♀); Millidge, 1977: 6, f. 8 (♂); Roberts, 1987: 78, f. 33e, 38e (♂♀); Heimer & Nentwig, 1991: 204, f. 549 (♂♀); Hormiga, 2000: 47, f. 20A–F, pl. 46A–F, 47A–F, 48A–F, 79D (♂♀).

Note 1: Platnick lists in synonymy of *L. punctatum*: "*Argus trapezoides* Walckenaer, 1847: 503, (D♀)", while Bonnet [1957] wrote that "*Argus trapezoides*: Walckenaer, 1847, p. 503 (*n.nov.* pro *Walckenæra punctata* Cambr. [Sic!]. It seems that Bonnet [1957] mistakenly mentioned Cambridge, because Cambridge's first publication appeared in 1853. It is also worth mentioning, that there are no indications in Walckenaer's text that he suggested a new name for *Walckenæra punctata*, and there are no words that can be treated as description of a new species. So *Argus trapezoides* Walckenaer, 1847 is a *nomen nudum* and both Platnick [2006] and Bonnet [1957] are incorrect treating this name as a valid.

Note 2. *L. stictocephalum* was described on the basis of both sexes, while Platnick [2006] indicates that Menge [1868] described only the male. In fact Menge dealt with two different species. The male was *Lophomma* (according to the modern concept) and the female belonged to *Walckenaeria* (see below).

TYPES: *Lophomma stictocephalum*: typewritten label "*Lophomma punctatum* Bl. Danzig (Menge)", 482b Collectio T. Thorell; handwritten label "*Erigone punctata*/ ♂ saltem (Blackw.)/ "*Lophomma stictocephalum*?/ Danzig Menge" (/ means new line), in NRS. Vial contains one male without right palp, and a female. Male as in Menge's description belongs to *L. punctatum* in the modern sense and the female to *Walckenaeria cuspidata* Blackwall, 1833 (as is obvious from Menge's description). Judging from the same mismatched sexes as in the original description, it seems that this material used for species description was sent by Menge to Thorell and can be treated as syntypes. Here we select the male as lectotype of *Lophomma stictocephalum.*

Microneta scrobiculata: typewritten label "*Lophomma punctatum* Bl. Danzig (Menge)" 482a Collectio T. Thorell;



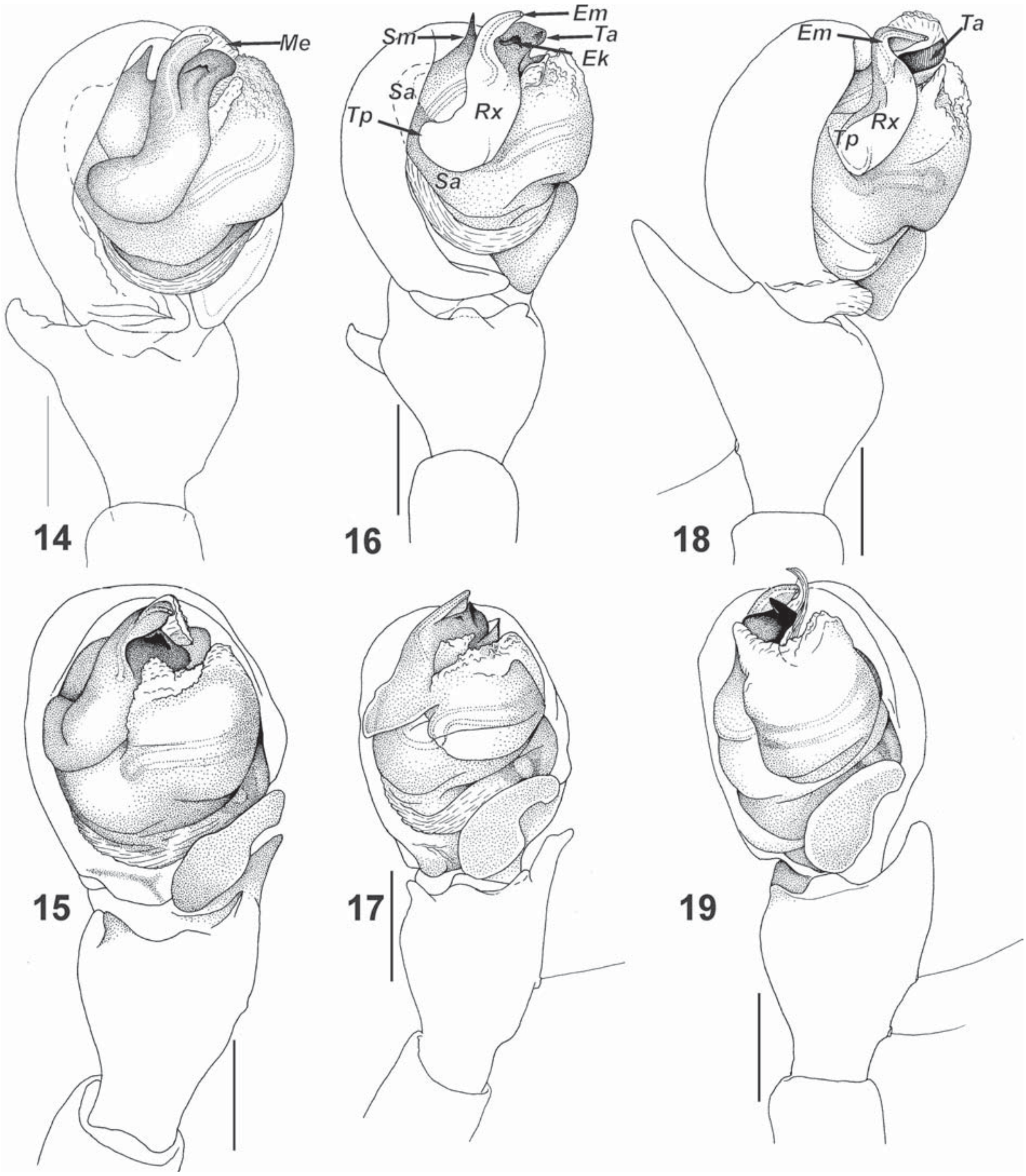
Map 1. Distribution of *Lophomma punctatum* (squares) and *L. vaccinii* (dots). Open squares correspond to country records. Question mark in dot — mistaken record.

Карта 1. Распространение *Lophomma punctatum* (квадрат) и *L. vaccinii* (круг). Незалитый квадрат указывает страну, без географической привязки. Вопросительный знак — ошибочное указание.

handwritten label "*Erigone punctata* Blackw./ *Microneta scrobiculata* Menge/ Danzig Menge," in NRS. Vial contains one male and one female; both specimens should be treated as syntypes of *Microneta scrobiculata*.

Material examined: GREAT BRITAIN: Scotland: 12 ♀♀ (MMUM), Tenstmuir Dunes, Fife, 06.1966 (John Crocker; ♂509230). England: 1 ♂ 1 ♀ (MMUM), C.L.N.R., 123. [=Leicestershire, Charnwood Lodge Natural Reserve, Charnwood Forest, wet flushes, coll. John Crocker]; 5 ♂♂ 2 ♀♀ (SPC), Dorset, Bere Regis, Waren PFT, 25.03.1973 (R.G. Snazell); 4 ♂♂ 2 ♀♀ (SPC), Dorset, Studland, Spur Bog, 8.10.1966 (R.G. Snazell). FRANCE: 1 ♂ 2 ♀♀ (ZMMU), Maxeut-La Musse (35), Tones (?Jones), 23.03.1976 (81 1863); 1♀ (ZMMU), "Paimpoint (35), Bombei compoot", 2.06.1979; 1 ♂ 1 ♀ (MNHN AR13194), Ouessant (det. J. Denis); ♂♂♀♀ (MNHN, AR 13193), Galia (Det. E. Simon); 1 ♂ 2 ♀♀ (MNHN, AR 13207), Aisne, Marais de Chivres (det J.Denis); ♂♂ ♀♀ (MNHN AR13211), Nord: Douchy (det J. Denis); 1 ♂ 2 ♀♀ (MNHN AR13208), Nord: Douchy (det. J. Denis); 3 ♂♂ (MNHN AR13209), Somme: Corbie ! (det. J. Denis). NORWAY: Rogaland: ♂♂ (ZMUB), Kerstø, 504.—8.05.1981 (E. Hauge); Finnmark: 1 ♂♂ 6♀♀ (ZMUT), Tana, Simplevatn, 70°25'N, bog, 1.07.—26.08.1978 (S. Koponen). FINLAND (selected localities): Åland: ♂♀ (ZMUT), Finnström, Bjärström, 669:10, 27.06.—30.10.1971 (P.T. Lehtinen); Varsinais-Suomi: ♂♂♀♀ (ZMUT), Naantali, Luolala, 671:22, lake shore, 5.—26.06.1970 (R. Mannila); 2♂♂ (ZMUT), Turku, Kärsämäki Pomponrahka, 672:24, bog, 3.05.—12.06.1975 (I. Oksala); Uusimaa: ♂♀ Espoo Friherrs, 668:37, 19.09.1968 (P.T. Lehtinen); Satakunta: ♂♂♀♀ (ZMUT), Vammala, Lousaja, 681:28, 5.10.1969 (M.I. Saaristo); South Häme: 3 ♂♂ 4 ♀♀ (ZMUT), Somero, Koisthuhta, 674:30, 2.05.—7.08.1975 (H. Hippa & R. Mannila); South Savo: ♀ (ZMUT), Lappeenranta, Hämmäauteensuo, 676:57, bog, 30.05.1968 (M.-R. Honkalinna); ♀ (ZMUT), Joutsa, Orakivi, 684:45, fen, 1.08.1973 (P.T. Lehtinen); North Karelia: ♂ (ZMUT), Eno, Pirttivaara, 695:67, 16.05—4.10.1970 (P.T. Lehtinen & K. Nygrén). RUSSIA: Leningrad Area: 3 ♂♂ 1 ♀ (IBPN), 20km W of St. Petersburg, environs of Staryi Petergof Town, Autumn 1985 (Yu.M. Marusik). Novosibirsk Area: 2 ♂♂ (IBPN), Chany Lake (ca 55°N 77°E), 1989 (V. Pekin). Krasnoyarsk Prov.: 12 ♂♀ (ZMMU-KE) Lebed' Vill. [Yenisei River, ca 62°05'N], 8.08.1988 (A. Ryvkin).

DESCRIPTION. Total length 1.8–2.4/1.9–2.7 (♂/♀). Carapace: 0.97–1.21/1.0–1.29 long, 0.71–0.93/0.71–0.93 wide. Leg I: 1.07 + 0.33 + 0.9 + 0.76 + 0.64/1.03 + 0.33 + 0.91 + 0.73 + 0.6. TmI 0.33–0.36. Male palp as in Figs. 1, 3, 8–9,14–17, 29–34; tibia with three long apophyses. Intermediate apophysis longer than other, directed upward. Terminal apophysis of embolic division short, wider than long with small keel-like outgrowth at the base. Epigyne as Figs. 2, 4, 10–11, 35–40, with septum (anterior median plate) covering almost all of fovea, its terminal part roundish and with a large round pit.



Figs. 14–19. Male palp of *Lophomma punctatum* (14–17) and *L. vaccinii* (18–19 — Magadan Area). 14, 16, 18 — prolateral; 15, 17, 19 — ventral. 14–15 — England, 16–17 — South Finland. Scale 0.1 mm.

Abbreviations: *Ek* — keel of Ta; *Em* — embolus; *Me* — embolic membrane; *Rx* — radix; *Sa* — suprategular apophysis; *Sm* — suprategular marginal apophysis; *Ta* — terminal apophysis; *Tp* — tailpiece.

Рис. 14–19. Пальпа самца of *Lophomma punctatum* (14–17) и *L. vaccinii* (18–19 — Магаданская обл.). 14, 16, 18 — пролатерально; 15, 17, 19 — снизу. 14–15 — Англия, 16–17 — Южная Финляндия. Масштаб 0,1 мм.

VARIATIONS. Specimens from UK are slightly larger than those from Norway, and Norwegian are larger than Finnish, St. Petersburg, and north Polish populations. Specimens from England have smaller variations in size than those from Norway (see diagram 1). Females from the different populations studied have less variable size of carapace.

DIAGNOSIS. This species can be easily separated from *L. vaccinii* by pit on epigynal septum, long intermediate dorsal apophysis and presence of triangular outgrowth on embolic division.

COMMENTS.There is some evidence that *L. stictocephalum* can be treated as a separate taxon with the status of

subspecies of *L. punctatum* or as a valid species. Specimens from England are distinctly larger than specimens from Gdansk (type locality), Finland and Russia. An intermediate population was found in Norway. One large sample contained both large and relatively small specimens. The Norwegian and Finnish-Russian populations are not overlapping in size (see diagram 1). On the other hand palps of the English males are distinctly larger than in Finnish or Russian specimens. Further studies (morphometric, genetic) are needed to clarify the status of *L. stictocephalum* and its distribution limits. We would not pay so much attention to the differences in size if *L. stictocephalum* would not be the type species of the genus *Lophomma*.

ECOLOGY. According to Harvey et al. [2002], *L. punctatum* is found amongst litter and low vegetation in a wide variety of wetland habitats, from brackish *Phragmites communis* beds in the coast, to upland blanket bogs. Mature specimens can be found throughout the year with peaks in spring-early summer, and in the autumn. It is distributed throughout Great Britain including Orkney and Outer Hebrides Islands. *L. punctatum* is local but often frequent.

Braun [1976] gave much information about ecology and phenology of *L. punctatum* from different European sources.

In mainland Europe this species occurs especially in bogs, moist meadows and on shorelines, sometimes in moist deciduous forests and even in vineyards [Hänggi et al. 1995]. In Germany [Blick, personal communication] adults of *L. punctatum* occur throughout the year. Within several years of trapping, adults were not found in November and January. Males were absent in January–March, while in April, July and September they were more abundant than females. The peak of catching was in June. According to Palmgren [1976], the species is found in Finland only in wet habitats: open bogs with *Carex,* around springs under *Alnus*, and in particular on swampy shores with *Phragmites* and other vegetation. He has caught it by sieving decaying plant remnants. According to Palmgren [1976], adults may overwinter. In Western Siberia it inhabits peat-bogs [Esyunin & Efimik, 1996].

DISTRIBUTION. Platnick [2006] indicated that this species has Palaearctic distribution. Actually it ranges from Ireland and Iberian Peninsula to the Yenisei River [Eskov, 1988, 1994]. If it is found that *L. stictocephalum* is not a synonym, the actual range of *L. punctatum* would be no more than half this area.

Lophomma vaccinii (Emerton, 1926)
Figs. 5–7, 12–13, 18–22, 25–28, 41–42, 49.

Lophocarenum v. Emerton, 1926: 116, f. 5 (♂).

L. v. — Crosby & Bishop, 1933: 128, pl. 4, f. 82–87 (♂, not ♀, belongs to other species/genus)

L. umbilicatum Crosby & Bishop, 1933: 128, pl. 4, f. 78–81 (♂). **Syn.n.**

L. cognatum Holm, 1960b: 121, f. 19 (♀). **Syn.n.**

L. v. — Paquin & Dupérré, 2003: 114, f. 1166–1169 (♂♀).

Faunistic references from Siberia (all sub *L. cognatum*):

Eskov, 1988: 120; 1992: 78; 1994:70; Marusik et al., 1992a: 145; 1992b: 77; 2000: 55, map 102; Esyunin & Efimik, 1996: 68; Tanasevitch & Trilikauskas, 2004: 82.

TYPES: Holotype ♂ and 2 ♀♀ (MCZ) "Type Lophocarenum vaccinii Emerton, Canadian Entomologist 1926, Holliston, Mass. March 25, 1924". Females are not conspecific or even congeneric with the male holotype. It is not clear how the females came to be in the vial because Emerton described the male holotype only.

Holotype of *L. umbilicatum* ♂ (AMNH) "TYPE — Lophomma - umbilicatum C&B - Mud pond — Zurich N.Y. — 17 May 1931" in poor condition, all legs broken, dissected palp partly expanded, tip of the dorsal tibial apophysis broken (as in original illustration), another palp is normal.

Holotype ♀ of *L. cognatum,* from Nome, Alaska, in MCZ, not examined. It is obvious from the figures that this species is conspecific with *L. vaccinii.*

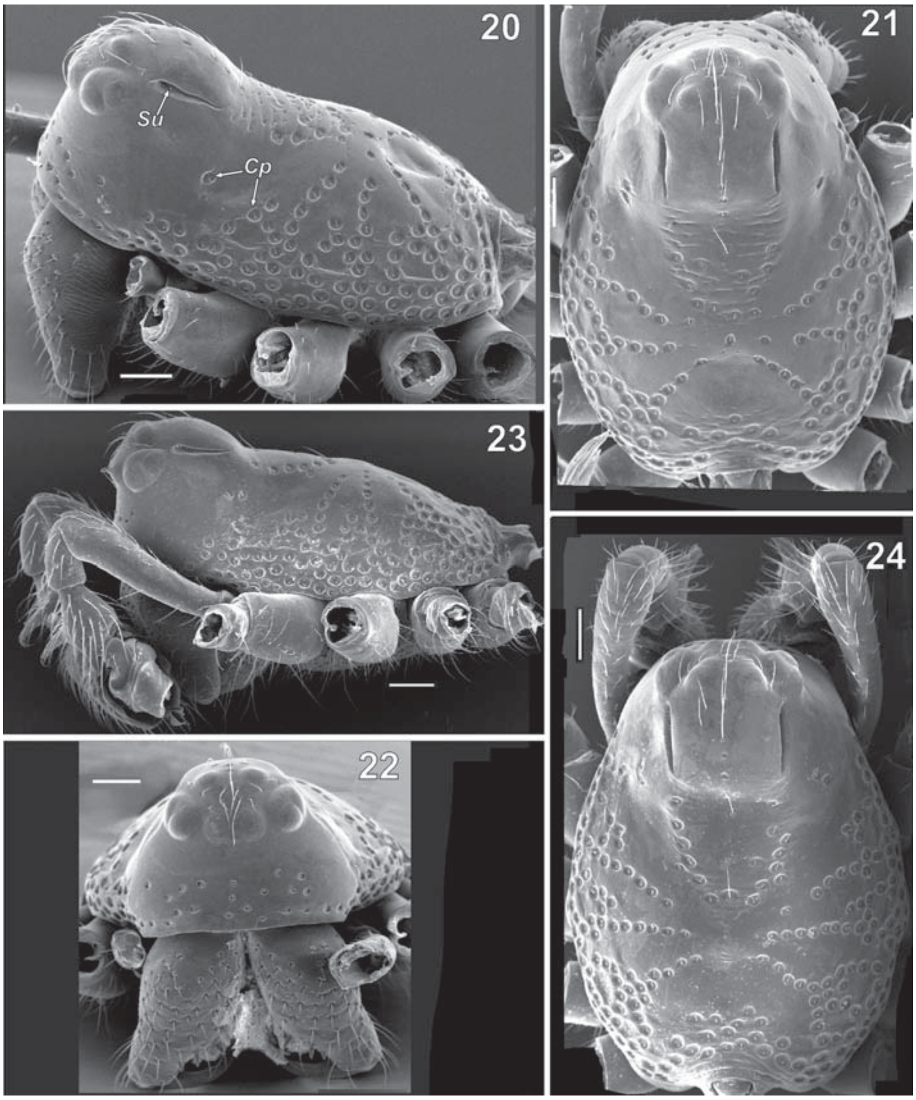
MATERIAL EXAMINED: RUSSIA: Evenkiya: 1 ♂ 2 ♀♀ (ZMMU-KE), Taimura River, Chambe River mouth, meteorological station "Kerbo", floodplain carex bog, 18.08.1982 (K.Yu. Eskov); Tuva: 1 ♂ (ZMMU-KE), West Sayan Mt. Range, environs of Turan Town, floodplain bog (*Carex, Scirpus, Filipendula, Betula, Salix, Alnus*), 7.08.1984 (A.B. Ryvkin); Amur Area: 5 ♂♀ (ZMMU-KE), Khinganski Reserve, Antonovskoye forestry, meadow, litter, 1.08.1983 (Yu.M. Marusik); 2 ♂♀ (ZMMU-KE), Khinganski Reserve, Olochi forestry, 15.08.1983 (Yu.M. Marusik); 1 ♂ (ZMMU-KE), environs of Zeya Town, bog, 8—11.10.1979 (S. Serbenyuk); Khabarovsk Prov.: 1 ♂ (IBPN), environs of Khabarovsk, env. of Bychikha Vill., Bolshekhektsyrski Reserve, 48°17.5'N 134°49.7'E, secondary forest with birch and other trees, leaf litter & carex, 11.09.2005 (Yu.M. Marusik); Maritime Prov.: 1 ♀ (IBPN), Uglovaya Vill, 43°21'N 132°03'E, 4.10.1997 (Yu.M. Marusik); Magadan Area: 2 ♂♂ 2 ♀♀, SW, 2 km downflow from Kava and Chelomdzha Rivers confluence, 5.08.1989 (A.S. Ryabukhin); 1 ♂ 2 ♀♀ (ZMMU), environs of Magadan, Ola River near mouth, poplar-*Chosenia* forest, 7.10.1984 (Yu.M. Marusik); 1 ♀ (ZMUT) ca 20 km E of Magadan, forest near Ola's River bridge, 59°36'N 151°18'E, 5—15 m, 6.07.1997 (S. Koponen); Kurile Islands: 2 ♂♂ 3 ♀♀ (IBPN), Shumshu Isl. NW shore, 50°46'N 156°15'E, 9—13.09.1996 (Yu.M. Marusik); 1 ♂ (UWBM), Kunashir, Bolotnyi Creek 10 m, 44.045°N 145.855°E, ex *Sphagnum* in coastal bog, 25 VIII 1994 (R. Crawford); 1 ♂ (UWBM) Iturup, Dobroye Lake 15 m, 44.737°N 147.217°E, ex grass litter on floating bog, 23 VIII 1996 (J.A. Lopez). CANADA, Ontario: 1 ♂ (CNC), North Gower, mixed forest at edge of swamp, 6—13.07.1987 (L. LeSage); 1 ♀ (CNC), same locality and habitat, 4—11.05.1987 (L. LeSage).

DESCRIPTION (based on Magadan specimens). Total length 2.36/2.71 (♂/♀). Carapace: 1.07/1.23 long, 0.79/0.89 wide. Leg I: 0.89 + 0.26 + 0.77 + 0.67 + 0.59/1.03 + 0.31 + 0.91 + 0.76 + 0.61. Carapace red-brownish to brown, abdomen dark gray. MtI 0.38. Tibial spines thin, slightly thicker than macrosetae. Male palp as in Figs. 5, 18–19; tibia with two long apophyses lateral and dorso-mesal and short intermediate apophysis, which is almost obsolete (difficult to observe). Dorsal apophysis much longer than the other. Embolus and terminal apophysis of embolic division longer than wide. Epigyne as in Figs 6, 12–13, 41–42, with thin septum, its length > its width. Septum without pit.

VARIATIONS. Male palps of different populations are almost the same size and shape. Some specimens may have a small intermediate tibial apophysis as shown on Figs. 5a and 5b. Anterior median plate of the epigyne can be thinner or wider, and may have lens or triangle shape in caudal view (Figs. 41–42).

DIAGNOSIS AND COMMENTS. *L. vaccinii* can be easily separated from the generotype, *L. punctatum* by having only two long tibial apophyses (3 in *L. punctatum*), lack of tooth/denticle on the apical apophysis of the embolic division, and thin epigynal septum without any pit (round scape-like structure with large pit in *L. punctatum*). The two species can also be separated by the shape of the retrolateral tibial apophysis: shorter and with rounded tip in *L. vaccinii,* and longer with abrupt tip in *L. punctatum*.

It seems that the small (intermediate) tibial apophysis of *L. vaccinii* is homologous to the large dorsal tibial apophysis in *L. punctatum*, while the dorsally placed apophysis in *L.*



Figs. 20–24. SEM micrographs of the male carapace of *Lophomma vaccinii* (20–22, Magadan) and *L. punctatum* (23–24, South Finland). 20, 23 — lateral; 21, 24 — dorsal; 22 — frontal. Scale 0.1 mm.

Abbreviations: *Cp* — cephalic pits; *Su* — sulci.

Рис. 20–24. СЭМ-снимки карапакса самца *Lophomma vaccinii* (20–22, Магадан) и *L. punctatum* (23–24, Южная Финляндия). 20, 23 — сбоку; 21, 24 — сверху; 22 — спереди. Масштаб 0,1 мм.

vaccinii is homologous to the dorso-mesal apophysis in *L. punctatum*.

DISTRIBUTION. Map 1. This species has a Siberio-Nearctic boreo-nemoral range and is distributed from South Yamal (northernmost record) to the Upper Kolyma and southern Kurile Islands in Asia. The southernmost records are from Altai, Maritime Province, South Sakhalin and south Kuriles (ca 44ºN). In the Nearctic it is known from Alaska, Massachusetts, Québec and Ontario. In Eurasia the range of this species does not overlap with that of *L. punctatum*. Its occurrence in northeastern China and Hokkaido is highly probable, as is its occurrence between Alaska and eastern Canada. It is possible that the record from South Yamal is an error. In Kirill Eskov's collection, stored in ZMMU, we found in a jar labelled "*Lophomma cognatum*" one vial from Yamal with one female identified as *Lepthyphantes complicatus.* So maybe Eskov just used copied geographical label without checking specimen and species label.

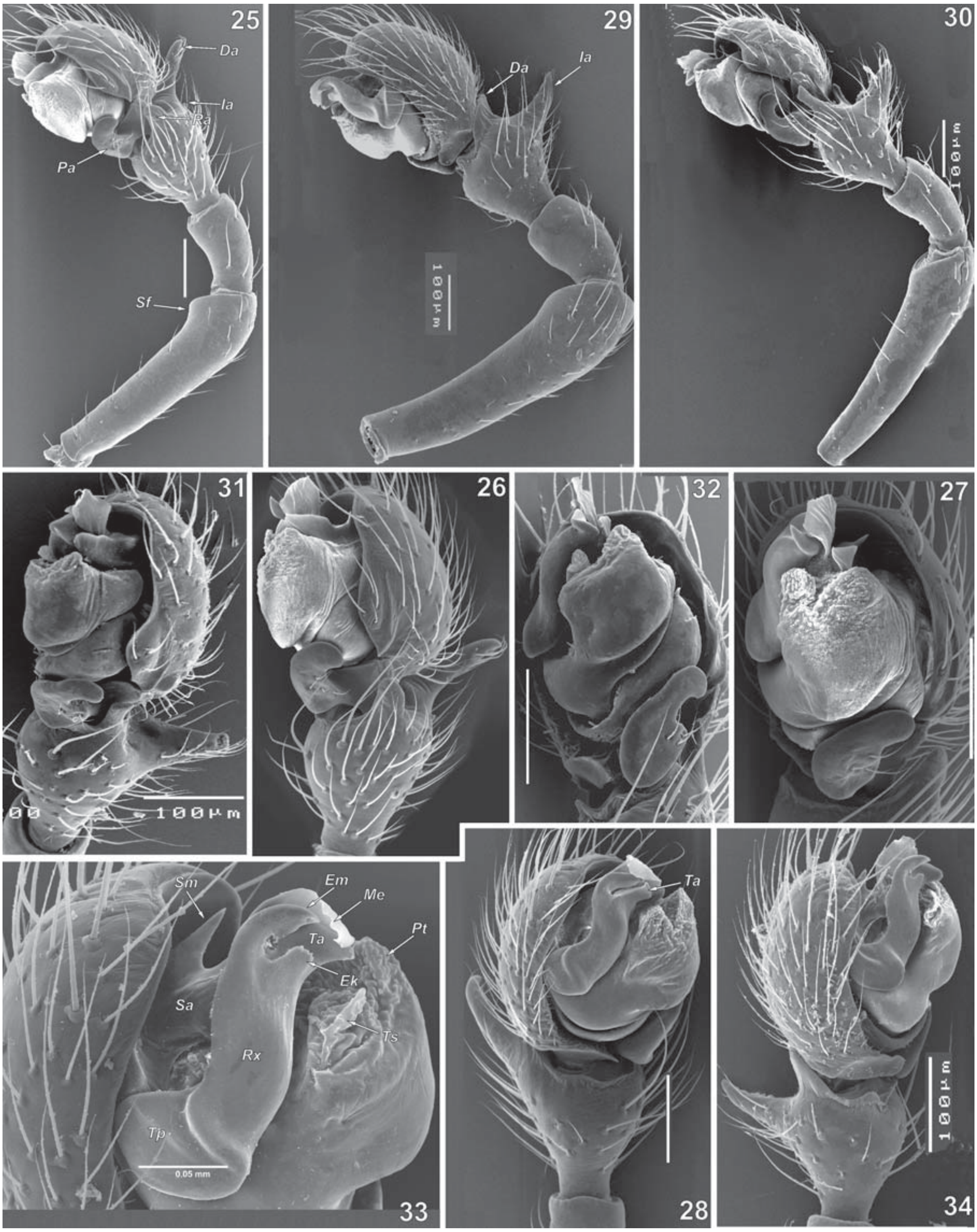
HABITAT. In the upper Kolyma region it is very rare. It was found in several types of boggy biotopes within the forest zone. In Middle Siberia *L. vaccinii* was collected in boggy thin larch forest [Eskov, 1988]. In Tuva it occurs in floodplain bogs. In Khabarovsk Province it was found in secondary birch forest within *Carex* patches. Near Magadan this species was found in *Chosenia* forest. In the Kuril Islands it is found in coastal bogs.

Misplaced species:

Palaearctic species:

Diphya albulum (Paik, 1983) **comb.n.**

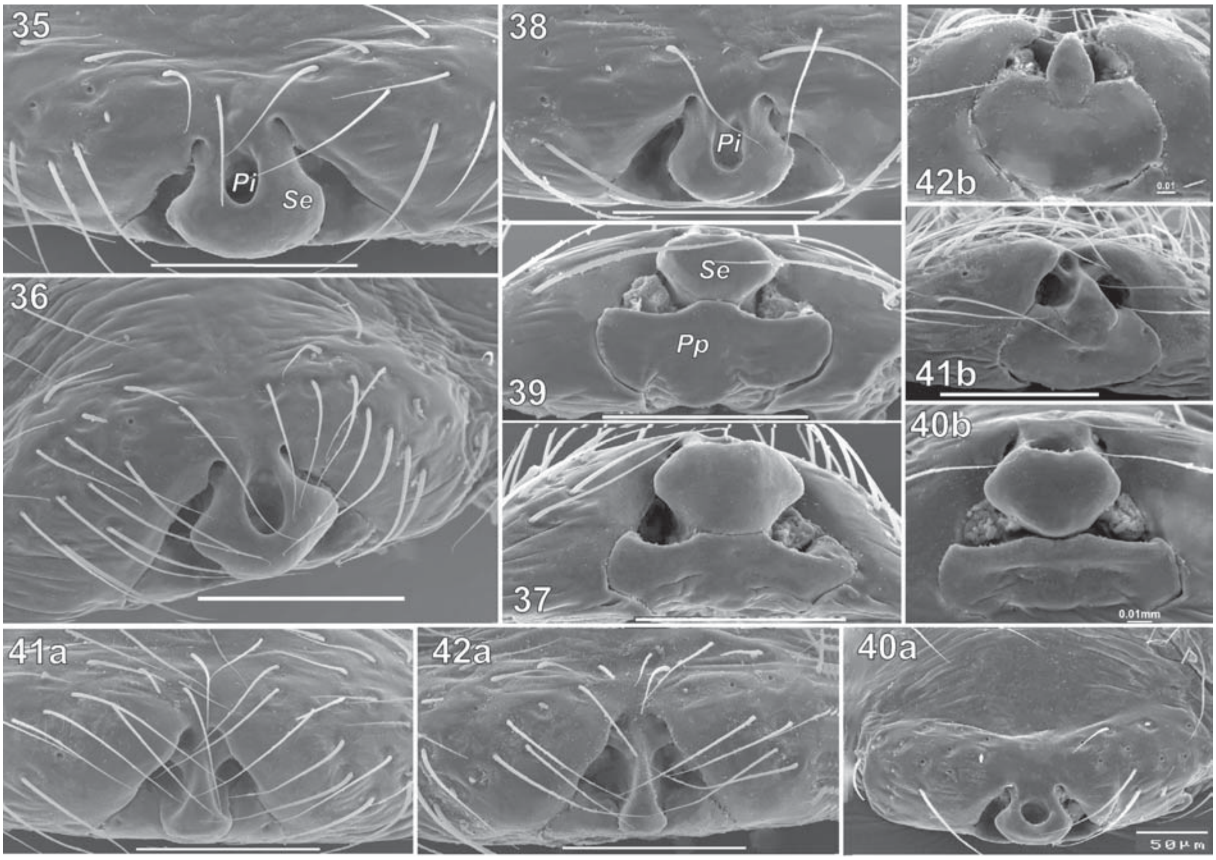
Lophomma a. Paik, 1983a: 31, f. 15–23 (D♂).
Lophomma. a. Namkung, 2002: 199, f. 17.51a–b (♂, D♀).



Figs. 25–34. SEM micrographs of the male palp of *Lophomma vaccinii* (25–28) and *L. punctatum* (29–34). 25–26, 30–31 — retrolateral; 28, 33–34 — prolateral; 27, 32 — ventral; 33 — terminal part of the bulb, prolateral. Scale 0.1 mm, if not otherwise indicated.

Abbreviations: *Da* — dorsal tibial apophysis; *Ek* — keel of Ta; *Em* — embolus; *Ia* — intermediate apophysis; *Me* — embolic membrane; *Pa* — paracymbium; *Pt* — protegulum; *Ra* — retrolateral tibial apophysis; *Rx* — radix; *Sa* — suprategular apophysis; *Sf* — swollen part of the femur; *Sm* — suprategular marginal apophysis; *Ta* — terminal apophysis; *Tp* — tailpiece; *Ts* — tegular sac.

Рис. 25–34. СЭМ-снимки пальпа самца *Lophomma vaccinii* (25–28) и *L. punctatum* (29–34). 25–26, 30–31 — ретролатерально; 28, 33–34 — пролатерально; 27, 32 — снизу; 33 — верхняя часть бульбуса, пролатерально. Масштаб 0,1 мм, если не указано иначе.



Figs. 35–42. Epigyne of *Lophomma punctatum* (35–40), and *L. vaccinii* (41–42). 35–37 — from Scotland; 38–39 — from Tana, Norway (same specimen); 40 — from Naantali, Finland; 41 — from Shumshu, Kurile Islands; 42 — from Khingan Reserve, Amur Area, Russia. Figs 33–39 are in the same scale to show size difference between Scottish and Scandinavian specimens. a — ventral; b — caudal, correspond to the same specimens. Scale 0.1 mm, if not otherwise indicated.

Abbreviations: *Pi* — pit of epigynal septum; *Pp* — posterior median plate; *Se* — septum (=anterior median plate).

Рис. 35–42. Эпигина *Lophomma punctatum* (35–40) и *L. vaccinii* (41–42). 35–37 — Шотландия; 38–39 —Tana, Норвегия (тот же экз.); 40 —Naantali, Финляндия; 41 — Шумшу, Курилы; 42 — Хинганский заповедник, Амурская обл. Рис. 33–39 в одном и том же масштабе чтобы показать разницу в размере между шотландскими и скандинавскими экземплярами. а — снизу; b — сзади, у одного и того же экземпляра. Масштаб 0,1 мм, если не указано иначе.

COMMENTS. This species is known from Korea only. Judging from the figures provided by Korean authors (straight and unhooked paracymbium, unrounded subtegulum, long free embolus) it is evident that this species is not a linyphiid but belongs in another araneoid family. Earlier Eskov [1992] suggested placement of this species in Araneidae. To our minds it belongs in *Diphya*, a tetragnathid genus. The male palp and female epigyne of *D. albulum* resembles those of *D. okumae* Tanikawa, 1995, known from adjacent Japan and China. *Diphya okumae* has also punctation of the carapace, and outgrowth of the upper part of the cymbium [see Tanikawa, 1995]. Therefore we transfer this species to *Diphya*: *Diphya albulum* (Paik, 1983) comb.n. *D. albulum* may possibly be a synonym of *D. okumae.*

Diphya tanasevitchi (F. Zhang, Y. Zhang & Yu, 2003) **comb.n.**

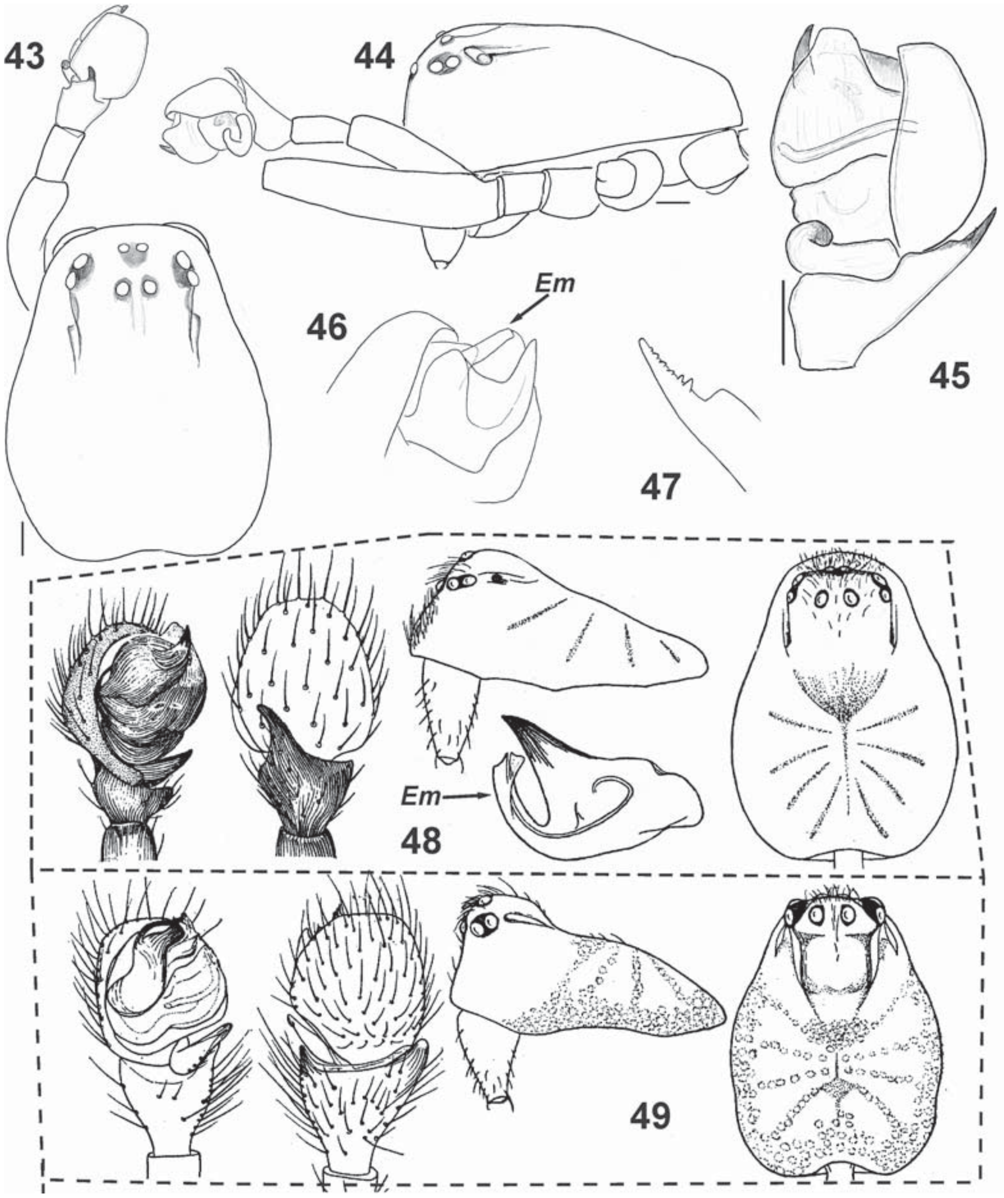
Lophomma. t. Zhang et al., 2003: 407, f. 1a–c (D♂).

COMMENTS. This species is known only from Hebei, China. Judging from the figures (straight and unhooked paracymbium, unrounded subtegulum, long free embolus) it is evident that this species belongs not to Linyphiidae, but to *Diphya,* Tetragnathidae. The male palp of *D. tanasevitchi* resembles that of *D. albulum* (Paik, 1983), known from Korea, and of *D. okumae* Tanikawa, 1995, known from Japan and China. Both these species also have punctation of the carapace, and an outgrowth of the upper part of the cymbium [see Tanikawa, 1995]. Therefore we transfer this species to *Diphya*: *Diphya tanasevitchi* (F. Zhang, Y. Zhang & Yu, 2003) **comb.n.** *D. tanasevitchi* may possibly be a synonym of *D. okumae.*

Lophomma candidum Bösenberg, 1902

L. c. Bösenberg, 1902: 184, pl. 16, f. 253 (D♀).

COMMENTS. Described from Germany. There are no taxonomic references to this species since the original description except for Roewer [1928, sub *Micrargus candidus*]. Although Bösenberg [1902] diagnosed *Lophomma* as spiders with an epigynal hole, this species has no fovea, but a scape-like structure. Bösenberg's types are lost [Braun, 1982]. Braun [1982] lists this species as *nomen dubium* ("diese dubiose Art"), and it is not in the German spider



Figs. 43–49. Male carapace and palp of the holotype of "*Lophomma*" *depressum* (43–48) and *L. vaccinii* (original drawing of *Lophomma umbilicatum* holotype). 43–44 — carapace, dorsal and lateral, respectively, 45, 46 — palp, retro- and prolateral, respectively; 43 — tip of tibial apophysis, prolateral; 48 — original figures of *L. depressum*. 48 and 49 after Crosby & Bishop (1933). Scale 0.1 mm. Abbreviation: *Em* — embolus.

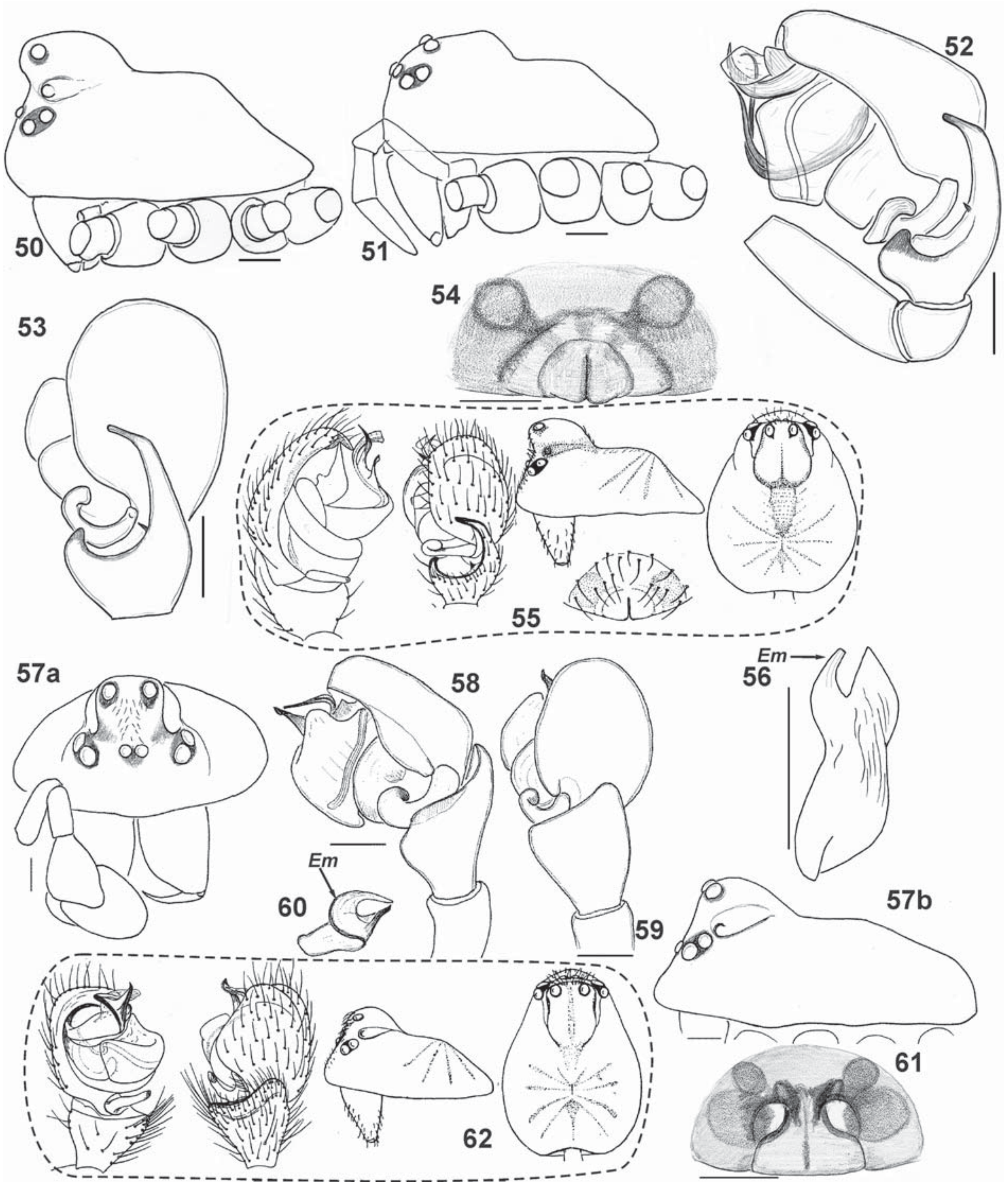
Рис. 43–49. Карапакс самца и пальпа голотипа "*Lophomma*" *depressum* (43–48) и *L. vaccinii* (49, оригинальные рисунки голотипа *Lophomma umbilicatum*). 43–44 — карапакс, сверху и сбоку, соответственно, 45, 46 — пальпа, ретро- и пролатерально, соответственно; 43 — вершина отростка голени, пролатерально; 48 — оригинальные рисунки *L. depressum*. 48 и 49 по Crosby & Bishop (1933). Масштаб 0,1 мм.

check-list [Blick et al., 2006]. Judging from the figures and description this species resembles *Mioxena blanda* (Simon, 1884). Because Bösenberg's types are lost [Braun, 1982], and its identity is unclear, we decided to synonymise it with the most similar species: *Lophomma candidum* Bösenberg, 1902 syn.n.= *Mioxena blanda* (Simon, 1884).

Lophomma rufipes Bösenberg, 1902

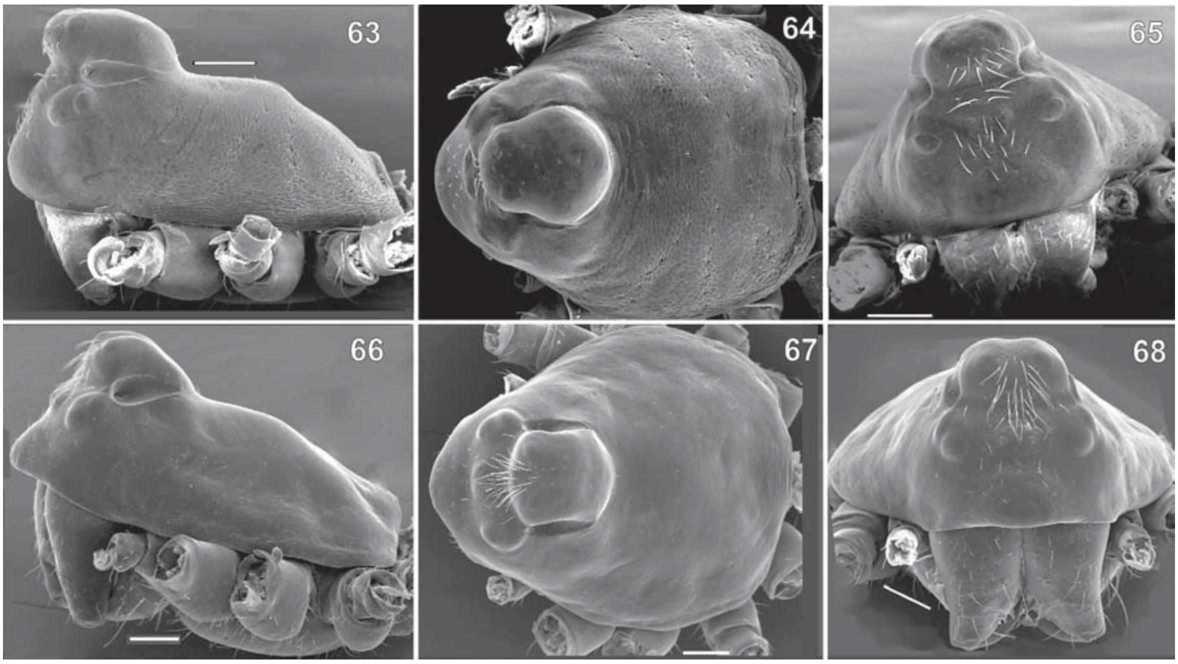
L. r. Bösenberg, 1902: 183, pl. 16, f. 252 (D♀).

COMMENTS. Described from Germany. There are no taxonomic references to this species since the original description except for Roewer [1928, sub *Micrargus rufipes*]. The description is very short, without information on chaetotaxy, or details about metatarsal trichobothria. Poor figures and inadequate description do not allow precise judgments about the specific placement of this species. However, accounting for habitat (Weinberg) and presence of an epigynal fovea it could be *Typhochrestus digitatus* (O. Pickard-Cambridge, 1872). As Bösenberg's types are lost [Braun,



Figs. 50–62. *Silometopoides pingrensis* (50–55), *Tmeticus affinis* (56) and *Ceratinops sylvaticus* (57–62). 50, 57a — male carapace, lateral; 51 — female carapace, lateral; 52, 57b — male palp, retrolateral; 53, 59 — ditto, dorsal; 54, 61 — epigyne, ventral; 55, 62 — original figures of *Lophomma pingrensis* and *L. sylvaticum* after Crosby and Bishop (1933); 56, 57, 60 — embolic division. *S. pingrensis* — paralectotypes, *C. sylvaticus* — specimens from Québec. Scale 0.1 mm. Abbreviation: *Em* — embolus.

Рис. 50–62. *Silometopoides pingrensis* (50–55), *Tmeticus affinis* (56) и *Ceratinops sylvaticus* (57–62). 50, 57a —карапакс самца, сбоку; 51 — карапакс самки, сбоку; 52, 57b — пальпа самца, ретролатерально; 53, 59 — то же, сверху; 54, 61 — эпигина, снизу; 55, 62 — ориг. рис. *Lophomma pingrensis* и *L. sylvaticum* по Crosby и Bishop (1933); 56, 57, 60 — эмболюсный отдел. *S. pingrensis* — паралектотип, *C. sylvaticus* — экз. из Квебека. Масштаб 0,1 мм.



Figs. 63–68. SEM micrographs of the male carapace of *Silometopoides pingrensis* (63–65) and *Ceratinops sylvaticus* (66–68). 63, 64 — lateral; 64, 67 — dorsal view; 65, 68 — frontal. *S. pingrensis* — paralectotpes, *C. sylvaticus* — specimens from Québec. Scale 0.1 mm.

Рис. 63–68. СЭМ-снимки карапакса самца *Silometopoides pingrensis* (63–65) и *Ceratinops sylvaticus* (66–68). 63, 64 — сбоку; 64, 67 — сверху; 65, 68 — спереди. *S. pingrensis* — паралектотипы, *C. sylvaticus* — экз. из Квебека. Масштаб 0,1 мм.

1982], and placement of *L. rufipes* is unclear, we decided to synonymise it with a similar species: *Lophomma rufipes* Bösenberg, 1902 syn.n. = *Typhochrestus digitatus* (O. Pickard-Cambridge, 1872).

Nearctic species

"*Lophomma*" *depressum* (Emerton, 1882)

Figs. 43–48, 78–83.

Lophocarenum d. Emerton, 1882: 50, pl. 14, f. 6 (D♂).
Erigone depressa: Marx, 1890: 533.
Diplocephalus depressus: Simon, 1894a: 615.
L. d.: Crosby & Bishop, 1933: 125, pl. 3, f. 64–68 (♂).

TYPES: Holotype ♂ from "Mt. Washington, N.H., July 1, 1874" (MCZ), in poor condition, with most of legs lost, abdomen separated, cephalic part partly deformed and concave (collapsed), one palp dissected.

OTHER MATERIAL EXAMINED: CANADA, Manitoba: 1 ♂ (CNC), Sandilands Prov. For.; 30 km E Richer. pine forest, 15.06.–22.8.1988 (S & J. Peck)

COMMENTS. Carapace with sulci, cephalic pits, but without punctation (Figs. 43–44). Cephalic part scarcely raised, palpal tibia with only a dorsal apophysis bearing several teeth along its prolateral margin and some very fine teeth on the ventral side near the tip (Figs. 82–83), end of palpal femur slightly swollen (Fig. 81); protegulum undivided, embolic division very broad with two branches: embolus and terminal apophysis (Figs. 78–79). Embolus weakly sclerotized. Palpal tibia with slit organs. To our mind it is not congeneric with *L. punctatum,* but we can not place this species in any genus known to us. Therefore we leave it in *Lophomma* with quotation marks.

DISTRIBUTION. So far, this species was reported from New Hampshire, District of Columbia, New Brunswick and Manitoba [Buckle et al., 2001].

Silometopoides pingrensis (Crosby & Bishop, 1933) **comb.n.**

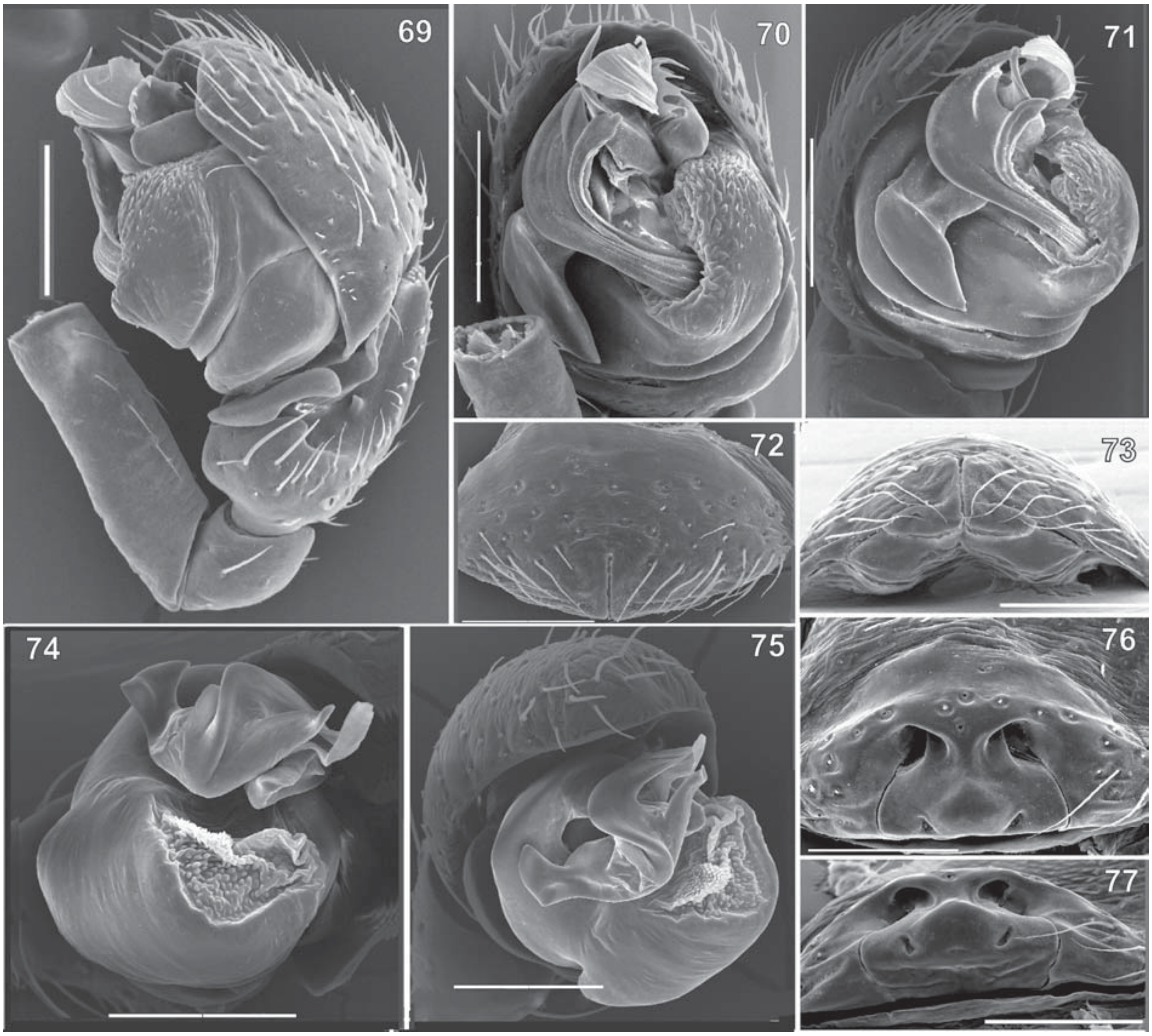
Figs. 50–55, 63–65, 69–73.

Lophomma pingrensis Crosby & Bishop, 1933: 126, pl. 3, f. 69–73 (D♂♀).

TYPES: Syntypes 8 ♂♂ 26 ♀♀ "Pingree Park Col. 20 Aug 1924 in moss Crosby" from AMNH.

Three additional females from the syntype series belong to another species, possibly to *Carorita limnaea.* Many specimens in poor condition with dissected abdomen, lost palps and legs, although several are in good condition. Lectotype ♂ designated here.

COMMENTS. It is known only from the original description from Colorado [see Buckle et al., 2001]. Carapace with sulci and cephalic pits, but without punctation, cephalic part strongly raised (in comparison to *Lophomma punctatum* and *L. vaccinii*) (Figs. 50, 63–65), tibia with dorsal apophysis bearing small tooth, lateral apophysis lacking (52–53, 69). Female carapace with raised cephalic part also. Study of the syntypes reveals that this species undoubtedly belongs to *Silometopoides* Eskov, 1990. It has very similar palp and epigyne to the generotype, *S. pampia* (Chamberlin, 1948). That is why we make the new combination *Silometopoides pingrensis* (Crosby & Bishop, 1933) **comb.n.** Among all its congeners this species has the highest carapace, although the palp and epigyne are very similar to the generotype and to *S. sphagnicola* Eskov & Marusik, 1992 and *S. mongolensis* Eskov & Marusik, 1992 [see Eskov & Marusik, 1992].



Figs. 69–77. SEM micrographs of the copulatory organs of *Silometopoides pingrensis* (69–73) and *Ceratinops sylvaticus* (74–77). 69 — male palp, retrolateral view; 70 — ditto, ventral view; 71 — ditto, prolateral view; 72, 76 — epigyne, ventral view; 73, 77 — ditto, caudal view; 74–75 — male palp, partly expanded, apical and apical-prolateral view, respectively. *S. pingrensis* — paralectotpes, *C. sylvaticus* — specimens from Québec. Scale 0.1 mm.

Рис. 69–77. СЭМ-снимки копулятивных органов *Silometopoides pingrensis* (69–73) и *Ceratinops sylvaticus* (74–77). 69 — пальпа самца, ретролатерально; 70 — то же, снизу; 71 — то же, пролатерально; 72, 76 — эпигина, снизу; 73, 77 — то же, сзади; 74–75 — пальпа самца, слегка вздута, апикально и апикально-пролатерально, соответсвенно. *S. pingrensis* — паралектотипы, *C. sylvaticus* — экз. из Квебека. Масштаб 0,1 мм.

DISTRIBUTION. This species is known from the type locality in Colorado only.

Ceratinops sylvaticus (Emerton, 1913) **comb.n.**
Figs. 57–61, 66–68, 74–77.

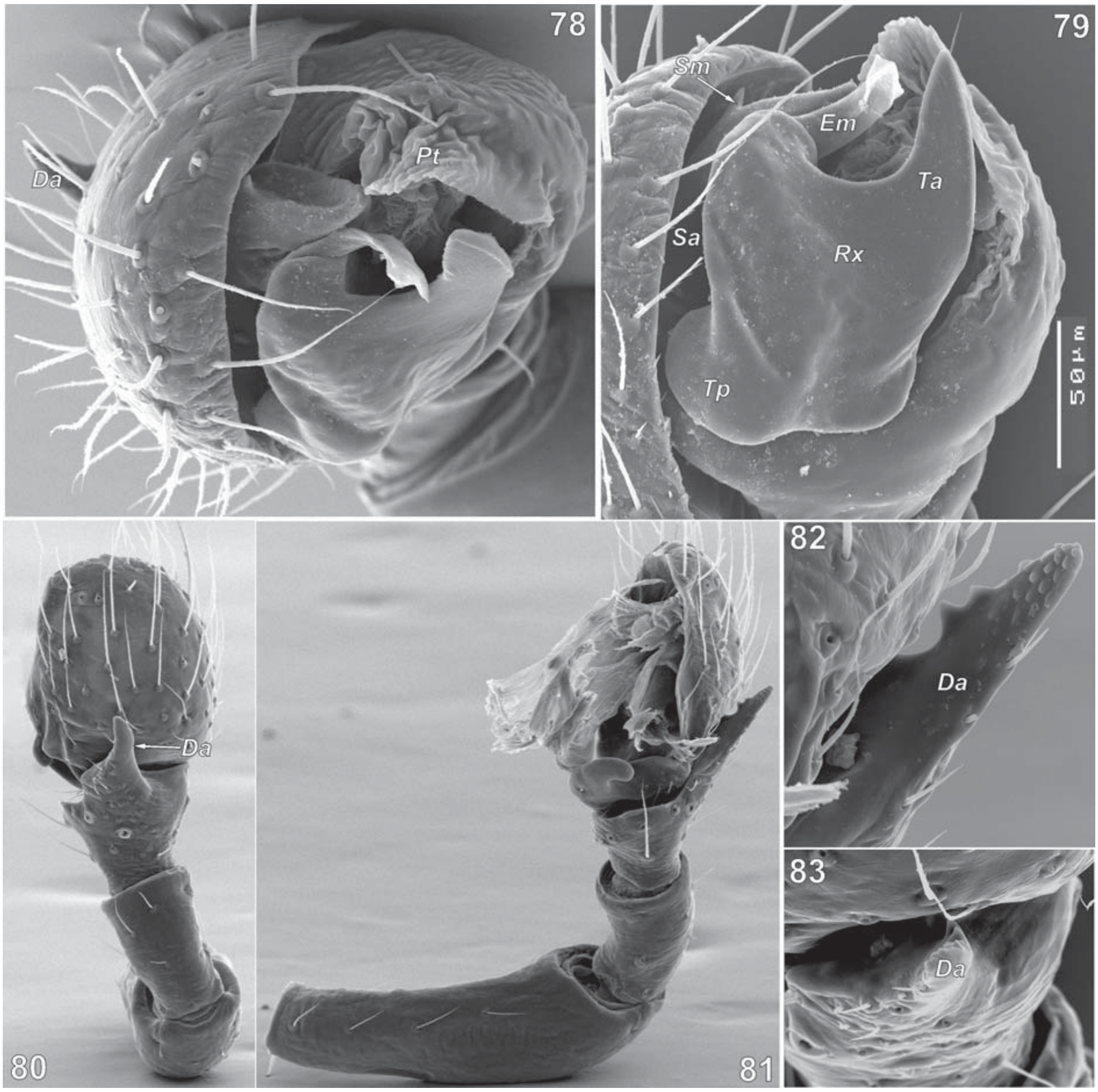
Lophocarenum sylvaticum Emerton, 1913a: 215, pl. 1, f. 9 (D♂♀).

Lophomma sylvaticum: Crosby & Bishop, 1933: 127, pl. 3, f. 74–77 (♂); Paquin & Dupérré, 2003: 113, f. 1162–1165 (♂♀).

TYPES: Syntypes ♂♀ (MCZ) “Whiteface, N.H., Aug. 9.1911, trail to Flat Mt. pond” in good condition. ♂ is designated here as a lectotype.

OTHER MATERIAL EXAMINED: CANADA, Québec: 2 ♂♀ (CNC), Poltimore, sifting moss in bog, 16.07.1982 (C. Dondale & J. Redner).

COMMENTS. Carapace with sulci and cephalic pits (well visible in SEM figures), punctation absent, cephalic area raised into a rostrum (Figs. 57b, 66, 67). Tibia without distinct (longer than wide) apophyses, but just a dorsal rounded extension (Figs. 58–59). Embolic division rather compact, with two outgrowths: embolus and spine-like terminal apophysis (Figs. 60, 74–75). Embolus makes strong round turn, and is subequal in length to the body of the embolic division. Epigyne with distinct median plate and openings (Figs. 61, 76–77). By the shape of carapace and palp this species resembles *Ceratinops carolinus* (Banks, 1911) and seems to be related to it. Although the latter



Figs. 78–83. SEM micrographs of the male palp of "*Lophomma*" *depressum*. 78, 83 — from above; 79 — prolateral; 80 — dorsal, 81–82 — retrolateral. 82–83 — shows indentation of dorsal tibial apophysis. 78 & 79, and 80 & 81 in equal scale.

Abbreviations: *Da* — dorsal tibial apophysis; *Em* — embolus; *Pt* — protegulum; *Rx* — radix; *Sa* — suprategular apophysis; *Sm* — suprategular marginal apophysis; *Ta* — terminal apophysis; *Tp* — tailpiece.

Рис. 78–83. СЭМ-снимки пальпы самца "*Lophomma*" *depressum*. 78, 83 — спереди; 79 — пролатерально; 80 — сверху, 81–82 — ретролатерально. 82–83 — показана зубчатость отростка голени. 78 & 79, и 80 & 81 в одном масштабе.

species is not closely related to the generotype of *Ceratinops* (=*C. annulipes* (Banks, 1892)), we decided to transfer *L. sylvaticum* to *Ceratinops*, and therefore suggest new combination: *Ceratinops sylvaticus* (Emerton, 1913) **comb.n.**

By the shape of the embolic division *C. sylvaticus* resembles two monotypic Nearctic genera *Souidas* (*S. tibialis* Crosby & Bishop, 1936) and *Symmigma* (*S. minimum* (Emerton, 1923)). The latter genus has a modified cephalic part. Unfortunately there are no detailed figures of embolic divisions of the generotypes of these genera, and therefore we can not evaluate how close they are to *C. sylvaticus*.

The embolic division of *C. sylvaticus* has the same general conformation as in *Praestigia, Baryphyma, Minyrioloides, Maso, Minicia* and several other genera with relatively short and non-screwlike radix, one spine-like terminal apophysis and the embolus proper making a kind of coil (turn) around that apophysis.

DISTRIBUTION. This species is known from New Hampshire, Québec and Manitoba [Buckle et al., 2001].

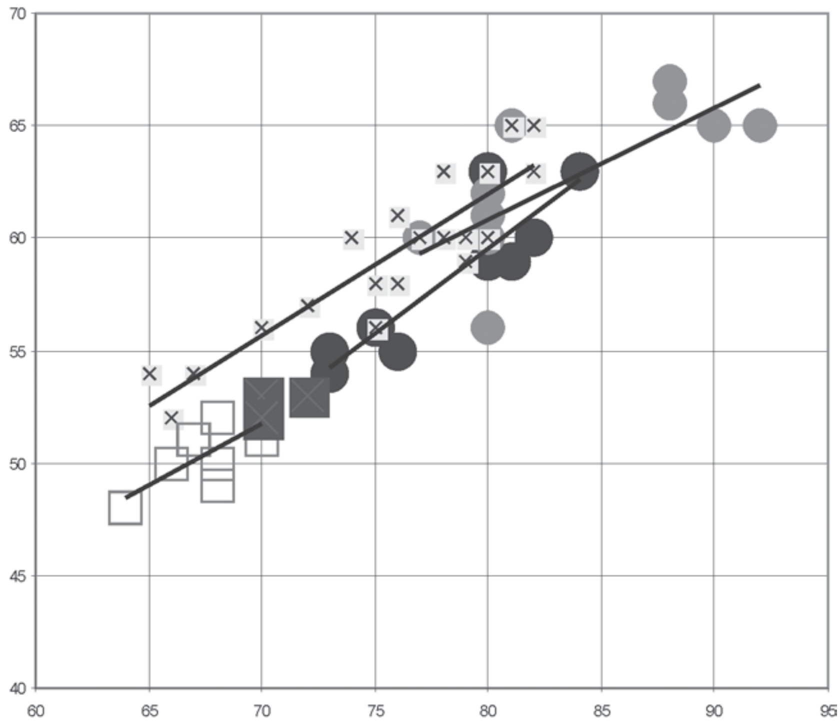


Diagram 1. Correlation between carapace length (X axis) and carapace width (Y axis) of different populations of *L. punctatum/stictocephalum*. Digits = N/70 (mm). Dark ring — ♂ from UK, light ring ♀ from UK and Norway; x — ♂ from Norway; filled square — ♀ from Finland, St. Petersburg, and Gdansk (types); unfilled squares — ♂ from Finland, St. Petersburg, and Gdansk (types).

Диаграмма 1. Зависимость между длиной (X) и шириной (Y) разных популяций *L. punctatum/stictocephalum*. Digits = N/70 (mm). Одно деление = N/70 mm. Тёмный круг — ♂ из Великобритании; светлый круг — ♀ из Великобритании и Норвегии; x — ♂ из Норвегии; залитый квадрат — ♀ из Финляндии, С.-Петербурга, и Гданьска (типы); незалитые квадраты — ♂ ♀ из Финляндии, С.-Петербурга, и Гданьска (типы).

Relationships

Millidge [1977] placed *Lophomma* in the *Leptorhoptrum/Lophomma* group (complex) which includes *Diplocentria* Hull, 1911, *Leptorhoptrum* Kulczyński, 1894, *Lophomma* Menge 1868, *Tiso* Simon, 1884, *Notioscopus* Simon, 1884, *Troxochrus* Simon, 1884 and *Zornella* Jackson, 1932. In Hormiga's [2000] cladodgram *Lophomma* is most close to *Typhochrestus*, and therefore to the *Diplocephalus-Savignia-Araeoncus* complex and far away from *Leptorhoptrum* and *Diplocentria*. The characters that unite *Lophomma* and *Typhochrestus* in Hormiga [2000] are "43" (male post-PME lobes (present)) and "48" (male lateral sulci (present)). Conformation of the embolic division in the two genera is very different: spiralled (screwlike radix and coiled embolus), with long embolus and ED apophysis in *Typhochrestus*. On the other hand there are several genera in which some species have sulci and others do not, for example *Procerocymbium* [see Marusik & Koponen, 2001], *Baryphyma, Diplocephalus* or *Walckenaeria* [see Roberts, 1987]. The same situation occurs with male post-PME lobes (cf. *Baryphyma*). Differences in male palps between *Lophomma* and the *Diplocephalus-Savignia-Araeoncus* are much more prominent (strongly enlarged dorsal suprategular apophyses). It is worth mentioning that *Typhochrestus* belongs to the *Walckenaera*-group [Millidge, 1977; Saaristo, personal communication], and *Diplocephalus, Savignia* and *Araeoncus* are members of the *Savignya*-group sensu Millidge [1977]. Both groups of genera are rather far from *Lophomma* by the conformation of the male palp [see Millidge, 1977].

Judging from the conformation of the male palp, and particularly of the embolic division, to our mind, *Lophomma* is closer to *Tapinocyba* (*T. insecta*, the generotype), non-screwlike and uncoiled parts of embolic division, one apophysis of embolic division (=terminal radical process) placed below the embolus proper. The embolic division of *Tmeticus* (*T. affinis*, the generotype, Fig. 56) is also similar to those of *Lophomma* and *Tapinocyba. T. insecta,* like *Lophomma,* has a large dorso-mesal tibial apophysis.

Several erigonine genera from different tribes (clades) have punctation of the carapace, for example Far Eastern *Silometopoides* (=*Orientopus*) *yedoensis* (Oi, 1960), Southeast Asian *Batueta voluta* Locket,

1982 (it has punctation on chelicerae also). The former species was even originally placed in *Lophomma*.

Exact placement of this genus is a subject for the further studies, because suprageneric classification of erigonines is inadequate and groups of genera (tribes) are not well defined (limited) or are controversial.

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